

**SMITH & LOWNEY, P.L.L.C.**

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May 20, 2019

**Via Certified Mail – Return Receipt Requested**

Managing Agent  
Vigor Shipyards, Inc.  
1801 16th Avenue, SW  
Seattle, WA 98134

Managing Agent  
Vigor Shipyards, Inc.  
5555 N Channel Ave., BLDG 71  
Portland, OR, 97217

**RECEIVED ON:**

ORC  
MAY 22 2019  
no cms  
EPA Region 10  
Office of the Regional Administrator

**Re: NOTICE OF INTENT TO SUE UNDER THE CLEAN WATER ACT AND  
REQUEST FOR COPY OF STORMWATER POLLUTION PREVENTION PLAN**

Dear Managing Agent:

We represent Waste Action Project, P.O. Box 9281, Covington, WA 98042, (206) 849-5927. Any response or correspondence related to this matter should be directed to us at the letterhead address. This letter is to provide you with sixty days' notice of Waste Action Project's (WAP's) intent to file a citizen suit against Vigor Shipyards, Inc. under section 505 of the Clean Water Act ("CWA"), 33 U.S.C. § 1365, for the violations described below. This letter is also a request for a copy of the complete and current Stormwater Pollution Prevention Plan (SWPPP) including all sections required by Vigor's National Pollution Discharge Elimination System (NPDES) permit no. WA0002615 (the "Permit").

Vigor's NPDES permit was issued by the Washington State Department of Ecology (Ecology) on July 9, 2015, and effective August 1, 2015. The permit was modified twice; first on July 30, 2015, and again on September 14, 2017. The permit will expire on July 31, 2020. Defendant has violated and continues to violate the CWA (see Sections 301 and 402 of the CWA, 33 U.S.C. §§ 1311 and 1342) and the terms and conditions of the NPDES permit with respect to operations of, and discharges of stormwater and pollutants from, its industrial facility located at or about 1801 16<sup>th</sup> Avenue SW, in Seattle, Washington where ship building, repair, and conversion occur (SIC Code 3731), to Elliott Bay and the Duwamish West Waterway. Stormwater discharges from Vigor's facility to the Duwamish West Waterway and Elliott Bay have occurred each and every day since July 9, 2015 on which there was 0.1 inch or more of precipitation, and continue to occur. Precipitation data from that time period is appended to this notice of intent to sue.

## **I. Prohibited Discharges.**

A. Condition S1.A of the Permit prohibits Vigor from discharging wastewater including hydroblast or pressure wash wastewater; bilge water, hydraulic fluid, synthetic, natural or processed oil, or oil-containing products, and solvents; black water, and gray water; maintenance shop wastewater including the fabrication shop, pipe shop, and warehouses; process wastewater (stormwater that commingles with process wastewater is considered process wastewater); floating materials, and any discharge that causes a visible change in turbidity or color of the receiving water; and illicit discharges. Vigor has and continues to violate this condition by discharging wastewater, floating materials, and/or discharge that causes a visible change in turbidity or color of the receiving water each and every day since August 1, 2015, and these violations continue to occur.

B. Condition S1.A of the Permit also requires Vigor to notify owners of vessels under repair dockside in writing that discharge of sewage and gray water is prohibited, and to make available at all times a list of contractors providing disposal services and any alternatives available for complying with regulations for the management of sewage and gray water. Vigor has and continues to violate this condition each and every day since August 1, 2015 by failing to notify owners as required and failing to make available at all times a list of contractors for providing disposal services or alternatives available to comply with regulations.

C. Condition S1.C prohibits drydock floodwater discharges beginning on the August 1, 2015 with daily discharge higher than the maximum daily limits for oily sheen (no visible sheen) Oil and Grease (5 mg/L) and Turbidity (5 NTU above background turbidity, but if background turbidity is greater than 50 NTU, the turbidity of the drydock floodwater must not exceed a 10% increase over background turbidity). Vigor has and continues to violate this condition each and every day since August 1, 2015 by consistently exceeding these limits, including on the following days, and on dates known to Vigor:

	Date	Oil/Grease
1.	January 23, 2018	<6.2 (outfall 002)
2.	August 11, 2016	5.2 (outfall 001)
3.	April 11, 2016	5.6 (outfall 002)
4.	August 13, 2015	9.3 (outfall 001)

D. Condition S1.C also requires that the drydocks be free of debris and the collection sumps be emptied and cleaned prior to flooding. Vigor has and continues to violate this condition each and every day since August 1, 2015, and on dates known to Vigor, by flooding drydock(s) prior to ensuring that the drydock(s) are free of debris and that the collection sump has been emptied and cleaned prior to flooding.

E. Condition S1.F prohibits Vigor from discharging stormwater from the light industrial area (Outfalls 7 through 22) beginning July 9, 2015, in excess of a maximum daily limit for pH (a range of 6-9 standard units). Vigor has and continues to violate this condition each and every day since July 9, 2015, by exceeding this limit repeatedly, including on sampling dates in the following quarters:

	Quarter	pH
1.	2018 Q4	5.78 (outfall 008) 5.95 (outfall 016)
2.	2018 Q3	5.4 (outfall 008) 5.44 (outfall 016)
3.	2016 Q4	5.65 (outfall 008)

F. Condition S1.F prohibits Vigor from discharging stormwater from the light industrial area (Outfalls 7 through 22) beginning July 9, 2015, in excess of a maximum daily limit for total suspended solids (TSS) of 30 mg/L. Vigor has and continues to violate this condition each and every day since July 9, 2015, by exceeding this limit repeatedly, including on sampling dates in the following quarters:

	Quarter	TSS
1.	2018 Q3	>70 (outfall 008) 51 (outfall 016)
2.	2017 Q4	61.5 (outfall 008)
3.	2016 Q2	53.9 (outfall 008) 81.5 (outfall 016)

G. Condition S1.F prohibits Vigor from discharging stormwater from the light industrial area (Outfalls 7 through 22) beginning July 9, 2015, in excess of a maximum daily limit for turbidity (25 NTU) of 30 mg/L. Vigor has and continues to violate this condition each and every day since July 9, 2015, by exceeding this limit repeatedly, including on sampling dates in the following quarters:

	Quarter	Turbidity
1.	2019 Q1	28.8 (outfall 016)
2.	2018 Q3	>51.6 (outfall 008) 51.6 (outfall 016)
3.	2017 Q4	60 (outfall 016)
4.	2017 3Q	59 (outfall 016)
5.	2017 Q2	37 (outfall 016)
6.	2016 Q1	28 (outfall 016)

H. Condition S1.G prohibits Vigor from discharging roof runoff (Outfalls OA, 4, 5, and 7) beginning July 9, 2015 in excess of a maximum daily limit for pH (a range of 6-9 standard units). Vigor has and continues to violate this condition each and every day since July 9, 2015 by exceeding this limit repeatedly, including in the following quarters:

	Quarter	pH
1.	2018 Q4	5.88 (outfall 005)
2.	2016 Q4	5.61 (outfall 004) 5.63 (outfall 005)

I. Condition S1.G prohibits Vigor from discharging roof runoff (Outfalls OA, 4, 5, and 7) beginning July 9, 2015 in excess of a maximum daily limit for turbidity (25 NTU). Vigor has and continues to violate this condition each and every day since July 9, 2015 by exceeding this limit repeatedly, including in the following quarter:

Quarter	Turbidity
2017 Q4	38 (outfall 004)

## II. Inspection Violations.

A. Condition S7.A requires Vigor to conduct and document visual inspections of the site each month. Vigor must ensure that such inspections are conducted by qualified personnel. *Id.* Each inspection must include observations made at stormwater sampling locations and areas where stormwater associated with industrial activity is discharged off-site, or discharged to waters of the state or to a storm sewer system that drains to waters of the state; observations for the presence of floating materials, visible oil sheen, discoloration, turbidity, odor, etc. in the stormwater discharge; observations for the presence of illicit discharges which, if discovered, must be eliminated within 30 days and Vigor must notify Ecology of the discharge within seven days; a verification that the descriptions of potential pollutant sources required under this permit are accurate; a verification that the site map in the SWPPP reflects current conditions; and an assessment of all BMPs that have been implemented, noting all of the following: (a.) effectiveness of BMPs implemented; (b.) Locations of BMPs that need maintenance; (c.) reason maintenance is needed and a schedule for maintenance; (d.) locations where additional or different BMPs are needed and the rationale for the additional or different BMPs. Condition S7.B. Vigor has violated and continues to violate this condition because it has failed to conduct and document visual inspections of the site each and every month as required beginning August 1, 2015. Additionally, Vigor has failed to ensure that inspections are conducted by qualified personnel. Moreover, Vigor's inspections have failed to include observations made at all stormwater sampling locations and areas where stormwater associated with industrial activity is discharged off-site or to waters of the state, such as drain holes on paved surfaces, and has failed to include observations for the presence of floating materials, visible oil sheen, discoloration, turbidity, odor, etc. in the stormwater discharge. The inspection has also failed to observe for the presence of illicit discharges, such as drain holes on paved surfaces. Vigor has failed and continues to fail to notify Ecology within seven days when an illicit discharge is discovered, and eliminate the illicit discharge within 30 days. Additionally, the monthly inspections fail to include a verification that the descriptions of potential pollutant sources required under this permit are accurate, and a verification that the site map in the SWPPP reflects current conditions. Finally, each monthly inspection fails to include an assessment of all BMPs that have been implemented including the effectiveness of BMPs inspected; locations of BMPs that need maintenance; the reason maintenance is needed and a schedule for maintenance; and locations where additional or different BMPs are needed and the rationale for the additional or different BMPs.

B. Condition S7.C requires Vigor to record the results of each inspection in an inspection report or checklist and keep the records on-site. Vigor must ensure that each inspection report documents the observations, verifications, and assessments described above and includes the

time and date of inspection; locations of inspection; and statements that, in the judgment of the person conducting the site inspection and a responsible corporate officer or their duly authorized representative, the site is either in compliance or out of compliance with the terms and conditions of the SWPPP and this permit; a summary report and a schedule of implementation of the remedial actions which must meet the requirements of the SWPPP and the permit that the Permittee plans to take if the site inspection indicates that the site is out of compliance; the name, title, and signature of the person conducting the site inspection, and the statement "I certify that this report is true, accurate, and complete, to the best of my knowledge and belief;" in addition to a certification and signature by a responsible corporate officer or their duly authorized representative, in accordance with Condition G.1.B. Vigor has violated and continues to violate this condition each and every month since August 1, 2015, because Vigor fails to record the results of each inspection in an inspection report or checklist and keep the records on-site as required.

C. Condition S8.B.3.a.v requires Vigor's SWPPP to identify personnel responsible for inspection of BMPs and other equipment and plant areas of Part II of the Permit. Vigor must also provide a tracking or follow-up procedure to ensure that appropriate action is taken in response to monitoring. There must be documentation of visual or other monitoring reporting and recordkeeping procedures and schedules as required by the permit. Condition S8.B.3.a.v. Vigor has been and continues to be in violation of this condition because its SWPPP fails to identify the personnel responsible for inspection of BMPs and other equipment and plant areas as required. Vigor has violated and continues to violate this condition each and every day since August 1, 2015 by failing to provide a tracking or follow-up procedure to ensure that appropriate action is taken in response to monitoring. Additionally, Vigor has failed and continues to fail to document visual or other monitoring reporting and recordkeeping procedures and schedules as required by the permit.

### **III. Monitoring and Reporting Violations.**

A. Condition S3.A requires Vigor to summarize, report, and submit monitoring data obtained during each monitoring period on the electronic discharge monitoring report form provided by Ecology, including data for each parameter tabulated in Condition S2 and as required by the form. A value must be reported for each day sampling occurred and summary values as applicable. If the method used to analyze values did not meet the minimum detection level and quantitation level identified in the permit, Vigor must report the actual quantitation level and detection level in the comments or in the location provided. If a test method used for analysis is an alternative method not specified in the permit or as allowed in Appendix A, it must be reported by Vigor in the DMR comments. Vigor is in violation of this condition because it has failed to report actual quantitation levels and detection levels in the comments or location provided for the following months:

1. January, 2018
2. April, 2016

B. Condition S2.A requires Vigor to examine drydock floodwater for visible sheen each time a drydock is being flooded in order to undock a vessel. Additionally, Vigor must collect samples monthly in each drydock while the drydock is being flooded to undock a vessel that has

had hull work done. If there are no vessel undockings in a given month, Vigor must clearly state this on that month's discharge monitoring report. Vigor has and continues to violate this condition by failing to monitor drydock discharge and failing to report drydock discharge results on discharge monitoring reports for the months and outfalls indicated below. In the alternative, Vigor is in violation of this condition for each of these months by failing to clearly report that no vessel undockings occurred for the months and outfalls indicated.

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| 1. January, 2019 (Outfall 001)    | 40. April, 2017 (Outfall 001)     |
| 2. January, 2019 (Outfall 003)    | 41. April, 2017 (Outfall 002)     |
| 3. December, 2018 (Outfall 002)   | 42. April, 2017 (Outfall 003)     |
| 4. November, 2018 (Outfall 002)   | 43. March, 2017 (Outfall 001)     |
| 5. October, 2018 (Outfall 002)    | 44. March, 2017 (Outfall 002)     |
| 6. September, 2018 (Outfall 001)  | 45. March, 2017 (Outfall 003)     |
| 7. September, 2018 (Outfall 002)  | 46. February, 2017 (Outfall 001)  |
| 8. September, 2018 (Outfall 003)  | 47. February, 2017 (Outfall 002)  |
| 9. August, 2018 (Outfall 002)     | 48. February, 2017 (Outfall 003)  |
| 10. July, 2018 (Outfall 001)      | 49. January, 2017 (Outfall 001)   |
| 11. July, 2018 (Outfall 002)      | 50. January, 2017 (Outfall 002)   |
| 12. July, 2018 (Outfall 003)      | 51. January, 2017 (Outfall 003)   |
| 13. June, 2018 (Outfall 001)      | 52. December, 2016 (Outfall 001)  |
| 14. June, 2018 (Outfall 002)      | 53. December, 2016 (Outfall 002)  |
| 15. April, 2018 (Outfall 001)     | 54. December, 2016 (Outfall 003)  |
| 16. March, 2018 (Outfall 003)     | 55. November, 2016 (Outfall 001)  |
| 17. February, 2018 (Outfall 001)  | 56. November, 2016 (Outfall 003)  |
| 18. February, 2018 (Outfall 002)  | 57. October, 2016 (Outfall 003)   |
| 19. February, 2018 (Outfall 003)  | 58. September, 2016 (Outfall 001) |
| 20. January, 2018 (Outfall 001)   | 59. September, 2016 (Outfall 003) |
| 21. January, 2018 (Outfall 003)   | 60. August, 2016 (Outfall 003)    |
| 22. December, 2017 (Outfall 001)  | 61. July, 2016 (Outfall 002)      |
| 23. December, 2017 (Outfall 003)  | 62. July, 2016 (Outfall 003)      |
| 24. November, 2017 (Outfall 001)  | 63. June, 2016 (Outfall 001)      |
| 25. November, 2017 (Outfall 002)  | 64. June, 2016 (Outfall 003)      |
| 26. November, 2017 (Outfall 003)  | 65. June, 2016 (Outfall 003)      |
| 27. October, 2017 (Outfall 003)   | 66. May, 2016 (Outfall 001)       |
| 28. September, 2017 (Outfall 001) | 67. May, 2016 (Outfall 003)       |
| 29. September, 2017 (Outfall 002) | 68. April, 2016 (Outfall 003)     |
| 30. September, 2017 (Outfall 003) | 69. March, 2016 (Outfall 003)     |
| 31. August, 2017 (Outfall 003)    | 70. February, 2016 (Outfall 002)  |
| 32. July, 2017 (Outfall 001)      | 71. February, 2016 (Outfall 003)  |
| 33. July, 2017 (Outfall 003)      | 72. January, 2016 (Outfall 003)   |
| 34. June, 2017 (Outfall 001)      | 73. December, 2015 (Outfall 002)  |
| 35. June, 2017 (Outfall 002)      | 74. December, 2015 (Outfall 003)  |
| 36. June, 2017 (Outfall 003)      | 75. November, 2015 (Outfall 003)  |
| 37. May, 2017 (Outfall 001)       | 76. October, 2015 (Outfall 003)   |
| 38. May, 2017 (Outfall 002)       | 77. September, 2015 (Outfall 002) |
| 39. May, 2017 (Outfall 003)       | 78. September, 2015 (Outfall 003) |

C. Condition S1.E of the permit authorizes Vigor to discharge emergency overflows from Outfall OA from the industrial stormwater collection and treatment system under Emergency Overflow Conditions subject to effluent limitations and Bypass Provisions. Condition S1.E and S2.B require Vigor to notify Ecology if discharge occurs and the discharge must be sampled for several parameters monthly as necessary. Vigor has violated and continues to violate these conditions by failing to notify Ecology when discharge has occurred and by failing to sample discharge each and every month in which those discharges occurred from August 1, 2015 to present.

#### **IV. Reporting and Recordkeeping Violations.**

A. Condition S3.C of the permit requires Vigor to record for each measurement or sample taken (1.) the date, exact place, method, and time of sampling or measurement; (2.) the individual who performed the sampling or measurement; (3.) the dates the analyses were performed; (4.) the individual who performed the analyses; (5.) the analytical techniques or methods used; and (6.) the results of all analyses. Vigor has violated and continues to violate this condition on dates known to Vigor because Vigor has not recorded all of the required information for each measurement or sample taken.

B. Condition S3.B requires that Vigor retain records of all monitoring information for a minimum of three years. Such information must include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by the Permit, and records of all data used to complete the application for the Permit. Vigor must extend this period of retention during the course of any unresolved litigation regarding the discharge of pollutants by Vigor. Vigor is in violation of this Condition because it has not retained records of all monitoring information for a minimum of three years.

C. Condition S1.D requires that wastewater hauled off-site must be hauled by a licensed hauler to a permitted disposal facility, and that Vigor record the volume and retain receipts for each disposal event for a minimum of three years. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to have wastewater hauled off-site by a licensed hauler to a permitted disposal facility, failing to record the volume of the wastewater hauled, and failing to retain receipts for each disposal event for a minimum of three years.

D. Condition S9.G requires Vigor to document any in-water surface preparation operations of one hour or more in duration, and any in-water coating or painting operation involving  $\frac{1}{2}$  gallon or more of paint or marine coating. Documentation requirements include one or more representative photographs of all in-water vessel maintenance best management practices (BMPs) which Vigor implements for surface preparation operations and all painting and coating operations. These photographs must be dated and maintained in a logbook with all necessary descriptive narrative of the in-water vessel maintenance BMPs. These records must be retained on-site for at least three years. Vigor has violated and continues to violate this condition by failing to document in-water surface preparations for in-water coating or painting of one hour or more in duration involving  $\frac{1}{2}$  gallon or more of paint or marine coating as required and failing to



date and maintain in a logbook for three years the photographs it has taken of in-water surface preparations.

E. Condition S9.B.9 requires Vigor to take photographs and maintain them in a logbook to demonstrate the condition of the drydock floor prior to launching every vessel. Documentation accompanying these photographs must include the name of the vessel, the drydock number, the launch date, the date of the photograph, and the name of the photographer. Vigor may use a videotape that documents the same information in place of a photograph collection. Vigor has violated and continues to violate this condition each and every day since August 1, 2015 by failing to take and maintain photographs and maintain them in a logbook with accompanying documentation as required.

F. Condition S3.E.1 requires Vigor to, whenever unable to comply with any permit condition, immediately take action to stop, contain, and cleanup any unauthorized discharges or otherwise stop the noncompliance and correct the problem. Condition S3.E.2 requires Vigor to immediately repeat sampling and analysis, submitting the results to Ecology within 30 days of sampling, if applicable. Condition S3.E.2.a requires Vigor to report noncompliance by telephone to Ecology within 24 hours from the time Vigor becomes aware of any of the following circumstances: (1.) Any noncompliance that may endanger human health or the environment, unless previously reported under immediate reporting requirements; (2.) Any unanticipated bypass that causes an exceedance of any effluent limit in the permit; (3.) any upset that causes an exceedance of an effluent limit in the permit; (4.) any violation of a maximum daily or instantaneous maximum discharge limit for any of the pollutants in Section S1.A of this permit; and (5.) any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limit in the permit. Condition S3.E.2.b requires Vigor to provide a written submission within five days of the time that Vigor becomes aware of any reportable event. All other permit violations must be reported on the facility's discharge monitoring reports. Condition S3.F requires Vigor to also report a spill of oil or hazardous materials in accordance with other state requirements. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, as evinced by Vigor's SWPPP section 5.3 which provides for illicit discharges to be reported within seven days and illuminated within 30 days.

G. Condition S7.D requires Vigor to notify Ecology of non-compliance identified during a monthly inspection. Vigor is in violation of this condition because it has failed to do so each and every time it identified a non-compliance during a monthly inspection, each and every month since August 1, 2015.

#### **V. Spill Control Plan Violations.**

Condition S6.A requires Vigor to submit an updated spill control plan to Ecology by January 31, 2020. Vigor must submit a paper copy and an electronic copy. Additionally, Vigor must review the plan at least annually and update as needed; send the changes to the plan to Ecology; and follow the plan and any supplements throughout the term of the permit. Condition S6.B requires Vigor's spill control plan to include (1.) a list of all oil and petroleum products and other materials used and/or stored on-site, which when spilled or otherwise released into the environment, designate as dangerous waste or extremely hazardous waste by the procedures set



forth in WAC 173-303-070. Other material that must be included are those that are used or stored on-site which may become pollutants or cause pollution upon reaching state's waters; (2.) a description of preventive measures and facilities (including an overall facility plot showing drainage patterns) which prevent, contain, or treat spills of these materials; (3.) a description of the reporting system Vigor will use to alert responsible managers and legal authorities in the event of a spill; and (4.) a description of the operator training to implement the plan. Vigor has violated and continues to violate this condition on dates known to Vigor by failing to submit an updated spill control plan to Ecology; failing to submit a spill control plan in paper and electronic format; and failing to send changes to the plan to Ecology. Vigor has also failed to review the plan at least annually and update as needed. Vigor has failed to follow the plan and supplements thereto throughout the term of the permit. Moreover, Vigor has failed to have or follow a plan with the required content.

## **VI. SWPPP Violations.**

A. Condition S8 requires Vigor to have a SWPPP specifically developed for this facility, consistent with permit requirements, fully implemented as directed by permit conditions, and updated as necessary to maintain compliance with permit conditions. It must contain BMPs consistent with Special Section S9. Vigor has violated and continues to violate this condition each and every day since August 1, 2015 by failing to have a SWPPP that is consistent with permit requirements, fully implemented as directed by permit conditions, and updated as necessary to maintain compliance with permit conditions.

B. Condition S8.A.1 requires Vigor to modify the SWPPP and adjust BMPs to correct deficiencies. Specifically, the Permit requires Vigor to conduct visual monitoring which may identify BMPs that are inadequate or pollutant sources that are not identified or poorly described in the SWPPP. When visual monitoring identifies inadequacies in the SWPPP due to the actual discharge of or potential to discharge a significant amount of any pollutant, the SWPPP must be modified and BMPs adjusted to correct the deficiency. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, including by failing to modify the SWPPP and adjust BMPs as required after each limitation exceedance described in section I above.

C. Condition S8.A.1 requires that Vigor provide a schedule in the SWPPP for implementation of any additional or enhanced BMPs that are necessary because of a facility change, a self-inspection, or a notice from Ecology. A schedule for implementation must be completed and entered into the SWPPP within 30 days of a notice/determination of necessary improvements or in accordance with an approved compliance schedule. BMPs identified in the plan must be implemented with due diligence. Unless otherwise authorized by Ecology in writing, non capital BMPs must be completed within two weeks after completing the plan and capital BMPs within six months. The SWPPP must be modified whenever there is a change in design, construction, operation, or maintenance of any BMP which causes the SWPPP to be less effective in controlling the pollutants. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to provide a schedule in the SWPPP for implementation of additional or enhanced BMPs that are necessary because of a facility change, self-inspection, or notice from Ecology; failing to enter that schedule within thirty days of a notice or determination or in accordance with an approved compliance schedule; and

implementing BMPs identified in the plan with due diligence. Vigor has also violated and continues to violate this condition each and every day since August 1, 2015, by failing to modify the SWPPP whenever there is a change in design, construction, operation, or maintenance of any BMP which causes the SWPPP to be less effective in controlling pollutants.

D. Condition S8.B requires that Vigor's SWPPP contain a detailed assessment of the facility and a detailed description of the BMPs being implemented. The facility assessment must include a description of the facility, detailed site map, inventory of facility activities, and inventory of equipment that contribute to or have the potential to contribute pollutants to stormwater. The assessment must be as complete as possible and updated to reflect changes at the facility. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to include a detailed assessment of the facility and a detailed description of the BMPs being implemented as required.

E. Condition S8.B.1.a requires Vigor's SWPPP to include a facility description that describes the industrial activities conducted at the site, the general layout of the facility including buildings and storage of raw materials, and the flow of goods and materials through the facility. It should include seasonal variations and any changes in work based on season or weather. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to include in its description of the Platform and Pier Area Storm Water Discharges the scuppers and drainage holes on the piers as point source water discharges. Specifically, this section of the SWPPP states that "no catch basins or outfalls are used to drain storm water from over-water platform or pier areas." However, drainage holes and scuppers drain storm water from over-water platform or pier areas.

F. Condition S8.B.1.b. requires the site map be drawn to an identified scale or include relative distances between significant structures and drainage systems. It must provide identifiers of significant features and be of sufficient size and detail to identify the following: stormwater drainage and discharge structures, an outline of the stormwater drainage areas for each stormwater discharge point (including discharges to ground water), paved areas and buildings, areas of pollutant contact (actual or potential), surface water locations (including wetlands and drainage ditches), areas of existing and potential soil erosion and vehicle service areas; and lands and waters adjacent to the site where helpful in identifying discharge points or drainage routes. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, because its site map does not show scuppers or pier drainage holes. Additionally, the site map fails to outline stormwater drainage areas for each stormwater drainage point, including scuppers.

G. Condition S8.B.1.c. requires Vigor's SWPPP to include an inventory of industrial activities that identifies all areas associated with industrial activities which have been or may potentially be sources of significant amounts of pollutants, including: i) Loading and unloading of dry bulk materials or liquids; ii) Outdoor storage of materials or products; iii) Outdoor manufacturing and processing; iv) Dust or particulate generating processes; v) Roofs or other surfaces exposed to air emissions from a manufacturing building or a process area; vi) On-site waste treatment, storage, or disposal; vii) Vehicle and equipment fueling, maintenance, and/or cleaning (includes washing); viii) Material list: The inventory of materials will list all the types

of materials handled at the site that potentially may be exposed to precipitation or runoff. The inventory will include a short narrative for each material describing the potential of the pollutant to be present in stormwater discharges. The Permittee will update this narrative when data become available to verify the presence or absence of these pollutants. The inventory will include a narrative description of any potential sources of pollutants from past activities; significant materials that were previously handled, treated, stored, or disposed of in a manner to allow ongoing exposure to stormwater; the method and location of on-site storage or disposal; and a list of significant spills and significant leaks of toxic or hazardous pollutants. Vigor has been and continues to be in violation of this condition because its inventory of industrial activities fails to identify all areas associated with industrial activities which may have been or may potentially be sources of significant amounts of pollutants, including a compliant material list, since August 1, 2015.

H. Condition S8.B.2 requires Vigor's SWPPP to include a monitoring plan which identifies all the points of discharge to surface water or to a storm drain system. The plan must also identify who is responsible for monitoring and how monitoring will be conducted to comply with permit conditions. The monitoring plan must address stormwater sampling requirements and visual inspections, and must include: a. identification of points of discharge; b. a check list for visual monitoring; c. who conducts stormwater sampling; d. procedures for sample collection and handling; and e. procedures for sending samples to the lab. Vigor has been and continues to be in violation of this requirement because the SWPPP's monitoring plan fails to identify all points of discharge to surface water, including its omission of scuppers or drainage holes from its pier since August 1, 2015.

## **VII. Best Management Practices Violations.**

A. Condition S8.B.3 requires Vigor's SWPPP to include a description of the BMPs that are necessary for Vigor to eliminate or reduce the potential to contaminate stormwater. BMPs included must comply with several requirements. Vigor is in violation of this condition because each SWPPP effective since August 1, 2015, has failed to describe BMPs necessary for Vigor to eliminate or reduce the potential to contaminate stormwater.

B. Condition S8.B.3.a.i requires Vigor's SWPPP to include a BMP that identifies specific individuals by name or by title within the facility who are responsible for developing the SWPPP and assisting the facility manager in its implementation, maintenance, and modification. The activities and responsibilities of the team must address all aspects of the facility's SWPPP. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, because its SWPPP list lacks persons who are responsible for developing the SWPPP and assisting the facility manager in its implementation, maintenance, and modification, and who address all aspects of the facility's SWPPP.

C. Condition S8.B.3.a.ii requires Vigor to include BMPs in its SWPPP that define ongoing maintenance and cleanup, as appropriate, of areas which may contribute pollutants to stormwater discharges. The SWPPP must include the schedule/frequency for each housekeeping task. Vigor has been and continues to be in violation of this permit condition each and every day since

August 1, 2015 because each SWPPP has failed to include good housekeeping BMPs as required.

D. Condition S8.B.3.a.iii requires that Vigor's SWPPP include operational BMPs. Operational BMPs include preventive maintenance including BMPs to inspect and maintain the stormwater drainage and treatment systems (if any) and plant equipment and systems that could fail and result in contamination of stormwater. The SWPPP must include the schedule/frequency for completing each maintenance task. Vigor has been and continues to be in violation of this condition each and every day since August 1, 2015, because each SWPPP has failed to include preventive maintenance BMPs as required.

E. Condition S8.B.3.b requires Vigor to provide structural source control BMPs to eliminate or minimize the exposure of stormwater to pollutants. This includes installation of an absorbent pad or storm filter for each catch basin on-site, especially the main employee parking lot where there is a high likelihood that motor oil may be leaked from vehicles. The Permit points to Volume IV of Ecology's Stormwater Management Manual for Western Washington for the minimum set of required BMPs for compliance with the permit (those listed as "applicable" for S401) and useful information for source control BMPs. BMPs listed in S9 Shipyard Best Management Practices are also required. Equivalent BMPs may be selected which result in equal or better quality of stormwater discharge. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to provide structural source control BMPs necessary to eliminate or minimize the exposure of stormwater to pollutants.

F. Condition S8.B.3.c requires Vigor to remove accumulated solids from storm drain lines (including inlets, catch basins, sumps, conveyance lines, and oil/water separators) owned or controlled by Vigor at least once by December 31, 2016. Vigor is required to conduct line cleaning operations using BMPs to prevent discharges of storm drain solids to surface waters of the state. Removed storm drain solids must be disposed of in accordance with applicable laws and regulations and documented in the SWPPP. Vigor is in violation of this condition because it has not removed accumulated solids from storm drain lines under its ownership or control at least once by December 31, 2016. Vigor has also violated this condition by failing to conduct line cleaning operations using BMPs to prevent discharges of storm drain solids to surface waters of the state and failing to dispose of storm drain solids in compliance with applicable laws and regulations.

G. Condition S9.A requires Vigor to implement BMPs prior to flooding a drydock including removing floatable and low density waste such as wood, plastic, and miscellaneous trash from the drydock floors. Vigor has violated and continues to violate this condition each and every day since August 1, 2015 by failing to implement required BMPs prior to flooding drydocks.

H. Condition S9.B.1 requires Vigor to confine dust and overspray to the shipyard repair and construction areas to the maximum extent feasible during abrasive blasting and spray painting of vessels and modules. Feasible methods of control include conducting the work in a sandblast/spray paint shed or installing plastic barriers around the vessel. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to confine dust and overspray to the shipyard repair and construction areas to the maximum extent feasible.



I. Condition S9.B.2 and 3 require Vigor to secure and arrange the plastic barriers hung from the vessel or temporary structures around the vessel to prevent the fugitive emissions of abrasive grit and dust, as well as effectively capture overspray from spray painting activities. The bottom edge of tarpaulins and plastic sheeting must be weighted or fastened so they remain in place during windy conditions. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to secure and arrange plastic barriers or temporary structures to prevent fugitive emissions of abrasive grit and dust and effectively capture overspray, and failure to weigh or fasten down the edge of tarpaulins and plastic sheeting so they remain in place during windy conditions.

J. Condition S9.B.4 requires Vigor to consider other feasible innovative procedures as appropriate to improve the effectiveness of controlling dust emissions and paint overspray. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to consider other feasible innovative procedures to improve the effectiveness of controlling dust emissions and paint overspray.

K. Condition S9.B.5 prohibits Vigor from abrasive blasting or spray painting while vessels are docked pier-side, such that material is discharged into the receiving water. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by conducting abrasive blasting or spray painting while vessels are docked pier-side, such that material is discharged into the receiving water.

L. Condition S9.B.6 requires Vigor to clean up spent paint, paint chips, protective coating materials, and abrasive grit as part of the repair or production activities, to the extent maximally feasible, to prevent their entry into state waters. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to clean up spent paint, paint chips, protective coating materials, and abrasive grit to the extent maximally feasible to prevent their entry into state waters, as evinced by the Ecology Inspector's observations on September, 14, 2015.

M. Condition S9.B.7 requires Vigor to set vessels on the drydock ways in such a way as to maximize accessibility to the floor of the drydock beneath the vessel for collection of spent abrasive. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to set vessels on the drydock in such a way as to maximize accessibility to the floor of the drydock beneath the vessel for collection of spent abrasive.

N. Condition S9.B.8 requires Vigor to use either manual or mechanical methods to clean the drydock of spent sandblast grit and debris prior to launching a vessel. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to clean the drydock of spent sandblast grit and debris prior to launching a vessel.

O. Condition S9.B.9 prohibits Vigor from flooding or sinking drydocks with standing piles of paint chips or spent abrasive on the drydock floor. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by flooding or sinking drydocks with standing piles of paint chips or spent abrasive on the drydock floor.

P. Condition S9.B.11 requires Vigor to clean the yard on a regular basis to minimize the possibility that stormwater runoff will carry sandblasting grit or other debris into the receiving water. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to clean the yard on a regular basis to minimize the possibility that stormwater runoff will carry sandblasting grit or other debris into the receiving water, as evinced by the Ecology Inspector's observations on September, 14, 2015.

Q. Condition S9.B.12 requires collected sandblasting debris be stored under cover in a designated area with the spent abrasive grit. Vigor has violated and continues to violate this condition by failing basis to store collected sandblasting debris under cover in a designated area with the spent abrasive grit, as noted by Ecology inspectors during an inspection on July 24, 2014.

R. Condition S8.B.3.d provides that BMPs beyond those identified in the Stormwater Management Manual for Western Washington may be necessary to achieve compliance with standards. Vigor has violated and continues to violate this condition each and every day since August 1, 2015 by failing to implement BMPs necessary to achieve compliance.

S. Condition S9.B.13 requires that innovations and procedures be adopted to improve the effectiveness of cleanup operations where they are feasible, appropriate, and Vigor can demonstrate they prevent the discharge of solids to water. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to adopt innovations and procedures to improve the effectiveness of cleanup operations when they are feasible, appropriate, and prevent discharge of solids to water.

T. Condition S9.H.1 prohibits Vigor from discharging oil, other hazardous material, or paint to state waters, except as specifically authorized by the permit. Vigor must (a.) prevent oil, grease, fuel, or paint spills from reaching drainage systems or surface waters; (b.) promptly clean up after it detects an oil, grease, fuel, or paint spill; (c.) conveniently store oil containment booms and absorbents so it can immediately deploy them in the event of a spill; and (d.) train all yard personnel that may participate in the cleanup of spills in the use and deployment of cleanup equipment. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by discharging oil, other hazardous material, or paint to state waters.

U. Condition S9.H.2 requires Vigor to, in the event of an accidental discharge of oil or hazardous material into waters of the state or onto land with a potential for entry into state waters, immediately commence and complete cleanup efforts, which takes precedence over normal work; stop the source of the spill, contain the liquid, cover the spill with oil absorbent pads or absorbent material, and deploy oil containment booms if there is a possibility the spill may reach the water, among other requirements. Vigor must also properly dispose of spilled material and used cleanup material and follow an approved spill control plan or according to specific instructions of an on-scene coordinator to cleanup oil or hazardous material. Drip pans or other protective devices must be used for all oil transfer operations to catch incidental spills and drips from hose nozzles, racks, drums, or barrels. Additionally, oils and fuel storage tanks must be provided with secondary containment. Vigor is in violation of this condition because it

has failed, in the event of an accidental discharge of oil or hazardous materials into waters of the state or onto land with a potential for entry into state waters, to immediately commence and complete cleanup efforts with precedence over normal work; stop the source of the spill, contain the liquid, cover the spill with oil absorbent pads or absorbent material, and deploy oil containment booms if there is a possibility the spill may reach the water. Vigor has failed to properly dispose of spilled material or used cleanup material and follow an approved spill control plan or act according to specific instructions of an on-scene coordinator to cleanup oil or hazardous materials. Vigor has also failed to use drip pans or other protective devices for all oil transfer operations, and failed to provide oil and fuel storage tanks with secondary containment. Vigor has been and continues to be in violation of this condition each and every day since August 1, 2015.

V. Condition S9.I requires Vigor to only mix paints and solvents in locations and under conditions which prevent spills from entering state waters. Vigor must use drip pans or other protective devices for all paint mixing and solvent transfer operations, unless it conducts the mixing operation in covered and controlled areas, away from storm drains, surface waters, shorelines, and piers. Vigor must use drip pans, drop cloths, or tarpaulins whenever it mixes paints and solvents on wood or grated docks. Vigor must not mix paints and solvents on floats. Vigor must treat paint and solvent spills as oil spills and prevent the spill from reaching storm drains and subsequent discharge into the water. Vigor is in violation of this condition because it has failed to prevent paints and solvents from spilling or discharging into the water, including by mixing paints and solvents in locations or under conditions which allow spills into state waters; failing to use drip pans, drop cloths, or tarpaulins whenever Vigor mixes paints and solvents on wood or grated docks; mixing paints and solvents on floats; and/or failing to treat paint and solvent spills as oil spills. Vigor has been and continues to be in violation of this condition each and every day since August 1, 2015.

W. Condition S9.J requires Vigor to minimize contact of shipboard cooling and noncontact cooling water with spent abrasives, paint chips, and other debris by proper segregation and control of water streams. Vigor must also incorporate appropriate methods to prevent accumulation of debris in drainage systems and promptly remove debris to prevent its discharge with stormwater. Vigor has been and continues to be in violation of this condition each and every day since August 1, 2015.

X. Condition S9.K requires Vigor to immediately replace or repair leaking connections, valves, pipes, hoses, and soil chutes carrying either water, or wastewater or petroleum/chemical products. Soil chute and hose connections must be tightly connected to vessels and to receiving lines or containers and maintained as leak free as practicable. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to immediately replace or repair leaking connections, valves, pipes, hoses, and soil chutes carrying water, wastewater, or petroleum/chemical products, and failing to tightly connect soil chute and hose connections to be as leak free as practicable.

Y. Condition S9.L requires Vigor to store solid chemicals, chemical solutions, paints, oils, solvents, acids, caustic solutions, and waste materials in a manner which will prevent the entry of these materials into waters of the state, including ground water. Storage methods must prevent



spills due to overfilling, tipping, or rupture. In addition, Vigor must (1.) store all liquid products on durable impervious surfaces and within bermed containment capable of containing 110% of the largest single container in the storage area; (2.) store waste liquids under cover; (3.) not store chemicals or waste liquids on piers and dry docks; (4.) clearly designate all waste storage areas for waste oil and hazardous waste, and keep these areas segregated from new product storage; (4.) segregate and secure incompatible or reactive materials stored in separate containment areas to prevent inadvertent mixing and reaction of spilled chemicals; transport off-site for disposal concentrated waste or spilled chemicals at a facility as required.. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, by failing to store these materials as required by the permit as evidenced by discharges of wastewater on September 25, 2014, and January 12, 2015, and the discharge of the contents of a portable toilet (including chemicals and untreated sanitary waste) on November 18, 2015.

Z. Condition S9.M requires that Vigor recycle back to the appropriate chemical solution tank any intercepted chemical spill or clean it up and dispose of it properly. Vigor has violated and continues to violate this condition each and every day since August 1, 2015 by failing to recycle back or clean up and properly dispose of intercepted chemical spills on dates known to Vigor.

AA. Condition S9.N requires Vigor to notify the owners of vessels in the drydocks, railway, or under repair at dockside, that federal and state regulations prohibit the discharge of sewage and gray waters into waters of the state. If vessels must discharge unsanitary treated wastes, they must discharge either to the sanitary system or into holding tanks that Vigor periodically empties into the sanitary sewer system. Vigor has violated and continues to violate this condition each and every day since August 1, 2015 by failing to notify owners of vessels in the drydocks, railway, and under repair at dockside, that federal and state regulations prohibit the discharge of sewage and gray waters into waters of the state, and failing to ensure that if vessels discharge unsanitary treated wastes, they discharge either to the sanitary system or holding tanks that Vigor periodically empties into the sanitary sewer system.

BB. Condition S4.A requires Vigor to handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground or surface water. Vigor has been and continues to be in violation of this condition each and every day since August 1, 2015. For example, when the portable toilet was not managed properly causing a discharge of chemicals and human waste to waters of the state on November 18, 2015.

## **VIII. Training Violations.**

A. Condition S8.B.3 requires that Vigor's SWPPP include a BMP to provide SWPPP training for employees who have duties in areas of industrial activity subject to the permit. At a minimum, training must include an overview of what is in the SWPPP and how employees make a difference in complying with the SWPPP and preventing contamination of stormwater. The training must address spill response procedures, good housekeeping, and material management practices. The BMPs must provide the content of the training, how training will be conducted, and the frequency/scheduling for assuring employees will receive training. Employees must be trained at least annually. A log of the dates on which specific employees receive training must be kept and included in the SWPPP. Condition S8.B.3.a.iv. Vigor has been and continues to be in

violation of these conditions each and every day since August 1, 2015, by failing to provide the required BMPs for employee training; failing to train employees at least annually; and failing to keep a log of the dates on which specific employees received training and include it in the SWPPP.

B. Condition S9.O requires Vigor to ensure that its employees, contractors, or customers who conduct repair work at the shipyard are familiar with the requirements in this permit. To facilitate the consistent and effective implementation of BMPs, Vigor is required to develop a program for training its employees and all contractors who work at the facility on BMPs and the environmental concerns related to this permit. The training program must be developed thoroughly. Vigor has been and continues to be in violation of this condition each and every day since August 1, 2015. For example, when the portable toilet was not managed properly causing a discharge of chemicals and human waste to waters of the state on November 18, 2015.

#### **IX. Failure to Control Production to Maintain Compliance.**

Condition G8 requires Vigor to control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or alternative treatment is provided, in order to maintain compliance with its permit. Vigor has violated and continues to violate this condition each and every day since August 1, 2015, failing to control production or all discharges in order to maintain compliance with its permit.

#### **X. Conclusion.**

The above-described violations reflect those indicated by the information currently available to Waste Action Project. These violations are ongoing. Waste Action Project intends to sue for all violations, including those yet to be uncovered and those committed after the date of this Notice of Intent to Sue.


Under Section 309(d) of the CWA, 33 U.S.C. § 1319(d), each of the above-described violations subjects the violator to a penalty of up to \$37,500 per day for each violation before November 2, 2015, and \$54,833 per day for each violation thereafter. The seriousness of the violations and their impact is a factor taken into consideration under 33 U.S.C. 1319(d), and the seriousness of Vigor's violations are reflected, among other things, in extremely high reported levels of metals in Vigor's stormwater discharge. For example, copper levels as high as 1010 ug/L and zinc levels as high as 3700 ug/L in 2018 reflect potentially significant harm to the environment. In addition to civil penalties, Waste Action Project will seek injunctive relief to prevent further violations under Sections 505(a) and (d) of the CWA, 33 U.S.C. § 1365(a) and (d), and such other relief as is permitted by law. Also, Section 505(d) of the CWA, 33 U.S.C. § 1365(d), permits prevailing parties to recover costs, including attorney's fees.

Waste Action Project believes that this NOTICE OF INTENT TO SUE sufficiently states grounds for filing suit. We intend, at the close of the 60-day notice period, or shortly thereafter, to file a citizen suit against Vigor Shipyards, Inc. under Section 505(a) of the Clean Water Act for violations.

During the 60-day notice period, we would be willing to discuss effective remedies for the violations addressed in this letter and settlement terms. If you wish to pursue such discussions in the absence of litigation, we suggest that you initiate those discussions within 10 days of receiving this notice so that a meeting can be arranged and so that negotiations may be completed promptly. We do not intend to delay the filing of a complaint if discussions are continuing when the notice period ends.

Sincerely,

**SMITH & LOWNEY, PLLC**

By:   
Richard A. Smith  
Katherine E. Brennan

cc: Andrew Wheeler, Administrator, U.S. EPA  
Chris Hladick, Region 10 Administrator, U.S. EPA  
Maia Bellon, Director, Washington Department of Ecology  
Registered Agent (National Registered Agents, Inc., 711 Capitol Way S Ste. 204,  
Olympia, WA, 98501)

Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
7/1/2015	0	7/29/2015	0	8/26/2015	0	9/23/2015	0
7/2/2015	0	7/30/2015	0	8/27/2015	0	9/24/2015	0
7/3/2015	0	7/31/2015	0	8/28/2015	0.02	9/25/2015	0.08
7/4/2015	0	8/1/2015	0	8/29/2015	1.28	9/26/2015	0
7/5/2015	0	8/2/2015	0	8/30/2015	0.4	9/27/2015	0
7/6/2015	0	8/3/2015	0	8/31/2015	0	9/28/2015	0
7/7/2015	0	8/4/2015	0	9/1/2015	0.23	9/29/2015	0
7/8/2015	0	8/5/2015	0	9/2/2015	0	9/30/2015	0
7/9/2015	0	8/6/2015	0	9/3/2015	0	10/1/2015	0
7/10/2015	0	8/7/2015	0	9/4/2015	0	10/2/2015	0
7/11/2015	0	8/8/2015	0	9/5/2015	0.01	10/3/2015	0
7/12/2015	0	8/9/2015	0	9/6/2015	0.21	10/4/2015	0
7/13/2015	0	8/10/2015	0	9/7/2015	0.01	10/5/2015	0
7/14/2015	0	8/11/2015	0	9/8/2015	0	10/6/2015	0
7/15/2015	0	8/12/2015	0.3	9/9/2015	0	10/7/2015	0.39
7/16/2015	0	8/13/2015	0	9/10/2015	0	10/8/2015	0
7/17/2015	0	8/14/2015	1.2	9/11/2015	0	10/9/2015	0.01
7/18/2015	0	8/15/2015	0	9/12/2015	0	10/10/2015	1.13
7/19/2015	0	8/16/2015	0	9/13/2015	0.02	10/11/2015	0
7/20/2015	0	8/17/2015	0	9/14/2015	0	10/12/2015	0.18
7/21/2015	0	8/18/2015	0	9/15/2015	0	10/13/2015	0.05
7/22/2015	0	8/19/2015	0	9/16/2015	0.04	10/14/2015	0
7/23/2015	0	8/20/2015	0.08	9/17/2015	0.07	10/15/2015	0
7/24/2015	0.01	8/21/2015	0	9/18/2015	0	10/16/2015	0
7/25/2015	0	8/22/2015	0	9/19/2015	0	10/17/2015	0.01
7/26/2015	0.08	8/23/2015	0	9/20/2015	0.16	10/18/2015	0.15
7/27/2015	0	8/24/2015	0	9/21/2015	0	10/19/2015	0.01
7/28/2015	0	8/25/2015	0	9/22/2015	0	10/20/2015	0

Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
10/21/2015	0	11/18/2015	0.06	12/16/2015	0.14	1/13/2016	0.75
10/22/2015	0	11/19/2015	0.08	12/17/2015	0.86	1/14/2016	0
10/23/2015	0	11/20/2015	0	12/18/2015	0.73	1/15/2016	0.05
10/24/2015	0	11/21/2015	0	12/19/2015	0	1/16/2016	0.4
10/25/2015	0.35	11/22/2015	0	12/20/2015	0.17	1/17/2016	0.33
10/26/2015	0.27	11/23/2015	0.12	12/21/2015	1.08	1/18/2016	0.06
10/27/2015	0	11/24/2015	0.28	12/22/2015	0.18	1/19/2016	0.49
10/28/2015	0.13	11/25/2015	0	12/23/2015	0.24	1/20/2016	0.27
10/29/2015	0.07	11/26/2015	0	12/24/2015	0.1	1/21/2016	1.15
10/30/2015	0.76	11/27/2015	0	12/25/2015	0.23	1/22/2016	0.26
10/31/2015	1.3	11/28/2015	0	12/26/2015	0	1/23/2016	0.77
11/1/2015	1.03	11/29/2015	0	12/27/2015	0.34	1/24/2016	0
11/2/2015	0.01	11/30/2015	0.02	12/28/2015	0.06	1/25/2016	0
11/3/2015	0.03	12/1/2015	0.48	12/29/2015	0	1/26/2016	0.3
11/4/2015	0	12/2/2015	0.1	12/30/2015	0	1/27/2016	0.82
11/5/2015	0.05	12/3/2015	0.5	12/31/2015	0	1/28/2016	0.61
11/6/2015	0	12/4/2015	0.08	1/1/2016	0	1/29/2016	0.19
11/7/2015	0.5	12/5/2015	0.62	1/2/2016	0	1/30/2016	0.05
11/8/2015	0.26	12/6/2015	0.44	1/3/2016	0.02	1/31/2016	0
11/9/2015	0.13	12/7/2015	1.08	1/4/2016	0.15	2/1/2016	0.01
11/10/2015	0.05	12/8/2015	2.13	1/5/2016	0.11	2/2/2016	0.01
11/11/2015	0.06	12/9/2015	0.53	1/6/2016	0	2/3/2016	0.53
11/12/2015	0.39	12/10/2015	0.37	1/7/2016	0	2/4/2016	0.33
11/13/2015	1.32	12/11/2015	0.01	1/8/2016	0	2/5/2016	0.14
11/14/2015	1.86	12/12/2015	0.63	1/9/2016	0	2/6/2016	0
11/15/2015	0.88	12/13/2015	0.05	1/10/2016	0	2/7/2016	0
11/16/2015	0.08	12/14/2015	0	1/11/2016	0.16	2/8/2016	0
11/17/2015	1.16	12/15/2015	0.06	1/12/2016	0.51	2/9/2016	0

Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
2/10/2016	0.13	3/9/2016	0.93	4/6/2016	0	5/4/2016	0
2/11/2016	0.48	3/10/2016	0.23	4/7/2016	0	5/5/2016	0
2/12/2016	0.8	3/11/2016	0.32	4/8/2016	0	5/6/2016	0
2/13/2016	0.49	3/12/2016	0.15	4/9/2016	0	5/7/2016	0
2/14/2016	0.15	3/13/2016	0.62	4/10/2016	0	5/8/2016	0.03
2/15/2016	0.46	3/14/2016	0.25	4/11/2016	0	5/9/2016	0
2/16/2016	0	3/15/2016	0	4/12/2016	0.32	5/10/2016	0
2/17/2016	0.47	3/16/2016	0	4/13/2016	0.1	5/11/2016	0
2/18/2016	0.12	3/17/2016	0	4/14/2016	0.15	5/12/2016	0
2/19/2016	0.4	3/18/2016	0	4/15/2016	0	5/13/2016	0
2/20/2016	0	3/19/2016	0	4/16/2016	0	5/14/2016	0.02
2/21/2016	0.05	3/20/2016	0.17	4/17/2016	0	5/15/2016	0.02
2/22/2016	0.17	3/21/2016	0.34	4/18/2016	0	5/16/2016	0.06
2/23/2016	0	3/22/2016	0	4/19/2016	0	5/17/2016	0
2/24/2016	0.02	3/23/2016	0.23	4/20/2016	0	5/18/2016	0
2/25/2016	0	3/24/2016	0	4/21/2016	0	5/19/2016	0.5
2/26/2016	0.17	3/25/2016	0	4/22/2016	0	5/20/2016	0
2/27/2016	0.13	3/26/2016	0.13	4/23/2016	0.01	5/21/2016	0.21
2/28/2016	0.82	3/27/2016	0.18	4/24/2016	0.3	5/22/2016	0
2/29/2016	0.09	3/28/2016	0	4/25/2016	0.11	5/23/2016	0
3/1/2016	0.81	3/29/2016	0	4/26/2016	0	5/24/2016	0
3/2/2016	0.28	3/30/2016	0	4/27/2016	0	5/25/2016	0
3/3/2016	0.03	3/31/2016	0	4/28/2016	0	5/26/2016	0
3/4/2016	0.16	4/1/2016	0	4/29/2016	0.01	5/27/2016	0
3/5/2016	0.19	4/2/2016	0	4/30/2016	0	5/28/2016	0.1
3/6/2016	0.16	4/3/2016	0.16	5/1/2016	0	5/29/2016	0
3/7/2016	0.2	4/4/2016	0.03	5/2/2016	0	5/30/2016	0
3/8/2016	0.14	4/5/2016	0	5/3/2016	0	5/31/2016	0



Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
6/1/2016	0.04	6/29/2016	0	7/27/2016	0	8/24/2016	0
6/2/2016	0.01	6/30/2016	0	7/28/2016	0	8/25/2016	0
6/3/2016	0	7/1/2016	0	7/29/2016	0	8/26/2016	0
6/4/2016	0	7/2/2016	0	7/30/2016	0	8/27/2016	0
6/5/2016	0	7/3/2016	0	7/31/2016	0	8/28/2016	0
6/6/2016	0	7/4/2016	0	8/1/2016	0	8/29/2016	0
6/7/2016	0	7/5/2016	0	8/2/2016	0.13	8/30/2016	0
6/8/2016	0.01	7/6/2016	0.01	8/3/2016	0	8/31/2016	0.01
6/9/2016	0.13	7/7/2016	0.12	8/4/2016	0	9/1/2016	0.17
6/10/2016	0.18	7/8/2016	0.24	8/5/2016	0	9/2/2016	0.05
6/11/2016	0	7/9/2016	0.01	8/6/2016	0	9/3/2016	0
6/12/2016	0	7/10/2016	0	8/7/2016	0.03	9/4/2016	0
6/13/2016	0	7/11/2016	0	8/8/2016	0	9/5/2016	0.01
6/14/2016	0.02	7/12/2016	0	8/9/2016	0	9/6/2016	0.42
6/15/2016	0	7/13/2016	0	8/10/2016	0	9/7/2016	0.04
6/16/2016	0	7/14/2016	0	8/11/2016	0	9/8/2016	0.03
6/17/2016	0.14	7/15/2016	0	8/12/2016	0	9/9/2016	0
6/18/2016	0	7/16/2016	0	8/13/2016	0	9/10/2016	0
6/19/2016	0	7/17/2016	0	8/14/2016	0	9/11/2016	0
6/20/2016	0.55	7/18/2016	0.01	8/15/2016	0	9/12/2016	0
6/21/2016	0	7/19/2016	0	8/16/2016	0	9/13/2016	0
6/22/2016	0	7/20/2016	0	8/17/2016	0	9/14/2016	0
6/23/2016	0.35	7/21/2016	0	8/18/2016	0	9/15/2016	0
6/24/2016	0.34	7/22/2016	0.33	8/19/2016	0	9/16/2016	0
6/25/2016	0	7/23/2016	0	8/20/2016	0	9/17/2016	0.22
6/26/2016	0	7/24/2016	0	8/21/2016	0	9/18/2016	0
6/27/2016	0	7/25/2016	0	8/22/2016	0	9/19/2016	0.08
6/28/2016	0	7/26/2016	0	8/23/2016	0	9/20/2016	0



Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
9/21/2016	0	10/19/2016	0.22	11/16/2016	0.2	12/14/2016	0
9/22/2016	0	10/20/2016	1.19	11/17/2016	0	12/15/2016	0
9/23/2016	0.01	10/21/2016	0.02	11/18/2016	0	12/16/2016	0
9/24/2016	0	10/22/2016	0.05	11/19/2016	0.04	12/17/2016	0
9/25/2016	0	10/23/2016	0.12	11/20/2016	0.01	12/18/2016	0
9/26/2016	0	10/24/2016	0.1	11/21/2016	0.02	12/19/2016	0.81
9/27/2016	0.02	10/25/2016	0	11/22/2016	0.45	12/20/2016	0.01
9/28/2016	0	10/26/2016	1.23	11/23/2016	0.13	12/21/2016	0
9/29/2016	0	10/27/2016	0.04	11/24/2016	0.66	12/22/2016	0.3
9/30/2016	0	10/28/2016	0	11/25/2016	0.01	12/23/2016	0.58
10/1/2016	0.05	10/29/2016	0.19	11/26/2016	0.38	12/24/2016	0.1
10/2/2016	0	10/30/2016	0.26	11/27/2016	0.32	12/25/2016	0
10/3/2016	0	10/31/2016	0.66	11/28/2016	0	12/26/2016	0.29
10/4/2016	0.13	11/1/2016	0.22	11/29/2016	0.04	12/27/2016	0.05
10/5/2016	0.04	11/2/2016	0.46	11/30/2016	0.1	12/28/2016	0
10/6/2016	0.31	11/3/2016	0	12/1/2016	0.01	12/29/2016	0.05
10/7/2016	0.11	11/4/2016	0	12/2/2016	0.27	12/30/2016	0.02
10/8/2016	0.61	11/5/2016	1.31	12/3/2016	0.18	12/31/2016	0.03
10/9/2016	0.06	11/6/2016	0.12	12/4/2016	0.17	1/1/2017	0.43
10/10/2016	0	11/7/2016	0.04	12/5/2016	0.24	1/2/2017	0
10/11/2016	0	11/8/2016	0	12/6/2016	0	1/3/2017	0
10/12/2016	0.01	11/9/2016	0.24	12/7/2016	0	1/4/2017	0
10/13/2016	1.75	11/10/2016	0	12/8/2016	0.06	1/5/2017	0
10/14/2016	1.36	11/11/2016	0	12/9/2016	0.34	1/6/2017	0
10/15/2016	0.73	11/12/2016	0.1	12/10/2016	0.18	1/7/2017	0
10/16/2016	0.56	11/13/2016	0.24	12/11/2016	0.09	1/8/2017	0.45
10/17/2016	0.17	11/14/2016	0.31	12/12/2016	0.09	1/9/2017	0.05
10/18/2016	0.08	11/15/2016	1.08	12/13/2016	0	1/10/2017	0.07

Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
1/11/2017	0	2/8/2017	0.7	3/8/2017	0.13	4/5/2017	0.46
1/12/2017	0	2/9/2017	1.63	3/9/2017	0.7	4/6/2017	0.26
1/13/2017	0	2/10/2017	0.02	3/10/2017	0.03	4/7/2017	0.1
1/14/2017	0	2/11/2017	0	3/11/2017	0.37	4/8/2017	0.01
1/15/2017	0	2/12/2017	0	3/12/2017	0.02	4/9/2017	0
1/16/2017	0	2/13/2017	0	3/13/2017	0.65	4/10/2017	0.38
1/17/2017	1.74	2/14/2017	0.23	3/14/2017	0.39	4/11/2017	0.02
1/18/2017	1.21	2/15/2017	1.63	3/15/2017	0.81	4/12/2017	0.85
1/19/2017	0.09	2/16/2017	0.5	3/16/2017	0	4/13/2017	0.08
1/20/2017	0	2/17/2017	0.01	3/17/2017	0.68	4/14/2017	0.01
1/21/2017	0.05	2/18/2017	0.15	3/18/2017	0.34	4/15/2017	0
1/22/2017	0.08	2/19/2017	0.06	3/19/2017	0	4/16/2017	0
1/23/2017	0	2/20/2017	0.2	3/20/2017	0.01	4/17/2017	0.07
1/24/2017	0	2/21/2017	0.07	3/21/2017	0.2	4/18/2017	0.48
1/25/2017	0	2/22/2017	0	3/22/2017	0.02	4/19/2017	0.35
1/26/2017	0	2/23/2017	0.01	3/23/2017	0.26	4/20/2017	0.01
1/27/2017	0	2/24/2017	0	3/24/2017	0.24	4/21/2017	0
1/28/2017	0	2/25/2017	0.01	3/25/2017	0.01	4/22/2017	0.07
1/29/2017	0.03	2/26/2017	0.33	3/26/2017	0.38	4/23/2017	0.49
1/30/2017	0.02	2/27/2017	0.16	3/27/2017	0.17	4/24/2017	0.06
1/31/2017	0	2/28/2017	0.01	3/28/2017	0.14	4/25/2017	0.05
2/1/2017	0	3/1/2017	0.02	3/29/2017	0.51	4/26/2017	0
2/2/2017	0.01	3/2/2017	0.09	3/30/2017	0	4/27/2017	0.04
2/3/2017	0.7	3/3/2017	0.36	3/31/2017	0	4/28/2017	0
2/4/2017	0.94	3/4/2017	0.04	4/1/2017	0.04	4/29/2017	0.14
2/5/2017	0.82	3/5/2017	0	4/2/2017	0.04	4/30/2017	0.08
2/6/2017	0.65	3/6/2017	0	4/3/2017	0	5/1/2017	0.03
2/7/2017	0.01	3/7/2017	0.75	4/4/2017	0.12	5/2/2017	0.13

Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
5/3/2017	0.11	5/31/2017	0.11	6/28/2017	0	7/26/2017	0
5/4/2017	0.44	6/1/2017	0.02	6/29/2017	0	7/27/2017	0
5/5/2017	0.25	6/2/2017	0	6/30/2017	0	7/28/2017	0
5/6/2017	0.02	6/3/2017	0	7/1/2017	0	7/29/2017	0
5/7/2017	0	6/4/2017	0	7/2/2017	0	7/30/2017	0
5/8/2017	0	6/5/2017	0	7/3/2017	0	7/31/2017	0
5/9/2017	0	6/6/2017	0	7/4/2017	0	8/1/2017	0
5/10/2017	0	6/7/2017	0.03	7/5/2017	0	8/2/2017	0
5/11/2017	0.47	6/8/2017	0.31	7/6/2017	0	8/3/2017	0
5/12/2017	0.16	6/9/2017	0.05	7/7/2017	0	8/4/2017	0
5/13/2017	0.03	6/10/2017	0	7/8/2017	0	8/5/2017	0
5/14/2017	0.04	6/11/2017	0	7/9/2017	0	8/6/2017	0
5/15/2017	0.33	6/12/2017	0	7/10/2017	0	8/7/2017	0
5/16/2017	0.15	6/13/2017	0	7/11/2017	0	8/8/2017	0
5/17/2017	0	6/14/2017	0	7/12/2017	0	8/9/2017	0
5/18/2017	0	6/15/2017	1.05	7/13/2017	0	8/10/2017	0
5/19/2017	0	6/16/2017	0	7/14/2017	0	8/11/2017	0
5/20/2017	0	6/17/2017	0.06	7/15/2017	0	8/12/2017	0.02
5/21/2017	0	6/18/2017	0	7/16/2017	0	8/13/2017	0
5/22/2017	0	6/19/2017	0	7/17/2017	0	8/14/2017	0
5/23/2017	0	6/20/2017	0	7/18/2017	0	8/15/2017	0
5/24/2017	0	6/21/2017	0	7/19/2017	0	8/16/2017	0
5/25/2017	0	6/22/2017	0	7/20/2017	0	8/17/2017	0
5/26/2017	0	6/23/2017	0	7/21/2017	0	8/18/2017	0
5/27/2017	0	6/24/2017	0	7/22/2017	0	8/19/2017	0
5/28/2017	0	6/25/2017	0	7/23/2017	0	8/20/2017	0
5/29/2017	0	6/26/2017	0	7/24/2017	0	8/21/2017	0
5/30/2017	0.01	6/27/2017	0	7/25/2017	0	8/22/2017	0

Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
8/23/2017	0	9/20/2017	0.13	10/18/2017	1.35	11/15/2017	0.46
8/24/2017	0	9/21/2017	0.02	10/19/2017	1.04	11/16/2017	0.16
8/25/2017	0	9/22/2017	0	10/20/2017	0.13	11/17/2017	0
8/26/2017	0	9/23/2017	0	10/21/2017	1.61	11/18/2017	0
8/27/2017	0	9/24/2017	0	10/22/2017	0.02	11/19/2017	0.58
8/28/2017	0	9/25/2017	0.01	10/23/2017	0	11/20/2017	0.63
8/29/2017	0	9/26/2017	0	10/24/2017	0	11/21/2017	1.14
8/30/2017	0	9/27/2017	0	10/25/2017	0.01	11/22/2017	0.52
8/31/2017	0	9/28/2017	0	10/26/2017	0	11/23/2017	0.2
9/1/2017	0	9/29/2017	0.07	10/27/2017	0	11/24/2017	0.01
9/2/2017	0	9/30/2017	0.01	10/28/2017	0	11/25/2017	0.19
9/3/2017	0	10/1/2017	0	10/29/2017	0	11/26/2017	0.25
9/4/2017	0	10/2/2017	0	10/30/2017	0	11/27/2017	0
9/5/2017	0	10/3/2017	0	10/31/2017	0	11/28/2017	0.68
9/6/2017	0	10/4/2017	0	11/1/2017	0.01	11/29/2017	0
9/7/2017	0	10/5/2017	0	11/2/2017	0.19	11/30/2017	0.27
9/8/2017	0	10/6/2017	0.01	11/3/2017	0.3	12/1/2017	0.27
9/9/2017	0	10/7/2017	0.01	11/4/2017	0.42	12/2/2017	0.79
9/10/2017	0	10/8/2017	0.01	11/5/2017	0.61	12/3/2017	0.05
9/11/2017	0	10/9/2017	0	11/6/2017	0	12/4/2017	0
9/12/2017	0	10/10/2017	0	11/7/2017	0	12/5/2017	0
9/13/2017	0	10/11/2017	0.17	11/8/2017	0.15	12/6/2017	0
9/14/2017	0	10/12/2017	0.38	11/9/2017	0.42	12/7/2017	0
9/15/2017	0	10/13/2017	0	11/10/2017	0.01	12/8/2017	0
9/16/2017	0	10/14/2017	0	11/11/2017	0.05	12/9/2017	0
9/17/2017	0.15	10/15/2017	0	11/12/2017	0.52	12/10/2017	0
9/18/2017	0.16	10/16/2017	0	11/13/2017	0.81	12/11/2017	0
9/19/2017	0.04	10/17/2017	0.06	11/14/2017	0.05	12/12/2017	0

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Date	Inches						
12/13/2017	0	1/10/2018	0.17	2/7/2018	0	3/7/2018	0.04
12/14/2017	0	1/11/2018	1.12	2/8/2018	0.05	3/8/2018	0.35
12/15/2017	0.06	1/12/2018	0.1	2/9/2018	0	3/9/2018	0
12/16/2017	0.14	1/13/2018	0.01	2/10/2018	0	3/10/2018	0
12/17/2017	0.03	1/14/2018	0	2/11/2018	0	3/11/2018	0
12/18/2017	0.7	1/15/2018	0.06	2/12/2018	0	3/12/2018	0
12/19/2017	1	1/16/2018	0.19	2/13/2018	0.14	3/13/2018	0.27
12/20/2017	0.13	1/17/2018	0.43	2/14/2018	0.1	3/14/2018	0.03
12/21/2017	0.01	1/18/2018	0.4	2/15/2018	0.01	3/15/2018	0
12/22/2017	0.09	1/19/2018	0.03	2/16/2018	0.11	3/16/2018	0
12/23/2017	0	1/20/2018	0.08	2/17/2018	0.3	3/17/2018	0
12/24/2017	0.12	1/21/2018	0.11	2/18/2018	0.06	3/18/2018	0
12/25/2017	0.09	1/22/2018	0.36	2/19/2018	0	3/19/2018	0
12/26/2017	0	1/23/2018	0.88	2/20/2018	0	3/20/2018	0
12/27/2017	0	1/24/2018	0.44	2/21/2018	0.06	3/21/2018	0.1
12/28/2017	0.34	1/25/2018	0.15	2/22/2018	0	3/22/2018	0.46
12/29/2017	1.5	1/26/2018	0.41	2/23/2018	0.03	3/23/2018	0.35
12/30/2017	0.11	1/27/2018	0.55	2/24/2018	0.06	3/24/2018	0.23
12/31/2017	0	1/28/2018	0.06	2/25/2018	0.2	3/25/2018	0.04
1/1/2018	0	1/29/2018	1.09	2/26/2018	0	3/26/2018	0.15
1/2/2018	0	1/30/2018	0	2/27/2018	0.01	3/27/2018	0.08
1/3/2018	0	1/31/2018	0	2/28/2018	0.15	3/28/2018	0
1/4/2018	0.13	2/1/2018	0.57	3/1/2018	0.03	3/29/2018	0
1/5/2018	0.51	2/2/2018	0.08	3/2/2018	0.18	3/30/2018	0
1/6/2018	0.17	2/3/2018	0.14	3/3/2018	0	3/31/2018	0
1/7/2018	0.33	2/4/2018	0.01	3/4/2018	0.13	4/1/2018	0
1/8/2018	0.16	2/5/2018	0.03	3/5/2018	0	4/2/2018	0
1/9/2018	0.18	2/6/2018	0.05	3/6/2018	0	4/3/2018	0

Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
4/4/2018	0.29	5/2/2018	0	5/30/2018	0	6/27/2018	0
4/5/2018	0.21	5/3/2018	0	5/31/2018	0	6/28/2018	0
4/6/2018	0.05	5/4/2018	0	6/1/2018	0	6/29/2018	0
4/7/2018	0.82	5/5/2018	0.01	6/2/2018	0	6/30/2018	0
4/8/2018	0.39	5/6/2018	0	6/3/2018	0.01	7/1/2018	0.04
4/9/2018	0	5/7/2018	0	6/4/2018	0	7/2/2018	0
4/10/2018	0.18	5/8/2018	0.03	6/5/2018	0	7/3/2018	0
4/11/2018	0.21	5/9/2018	0	6/6/2018	0	7/4/2018	0
4/12/2018	0.11	5/10/2018	0.04	6/7/2018	0	7/5/2018	0
4/13/2018	0.66	5/11/2018	0	6/8/2018	0.25	7/6/2018	0
4/14/2018	1.7	5/12/2018	0	6/9/2018	0.09	7/7/2018	0.01
4/15/2018	0.12	5/13/2018	0	6/10/2018	0.06	7/8/2018	0
4/16/2018	0.59	5/14/2018	0	6/11/2018	0	7/9/2018	0
4/17/2018	0.01	5/15/2018	0	6/12/2018	0	7/10/2018	0
4/18/2018	0	5/16/2018	0	6/13/2018	0.02	7/11/2018	0
4/19/2018	0	5/17/2018	0	6/14/2018	0	7/12/2018	0
4/20/2018	0	5/18/2018	0	6/15/2018	0	7/13/2018	0
4/21/2018	0.03	5/19/2018	0.04	6/16/2018	0	7/14/2018	0
4/22/2018	0	5/20/2018	0	6/17/2018	0	7/15/2018	0
4/23/2018	0	5/21/2018	0	6/18/2018	0	7/16/2018	0
4/24/2018	0	5/22/2018	0	6/19/2018	0	7/17/2018	0
4/25/2018	0	5/23/2018	0	6/20/2018	0	7/18/2018	0
4/26/2018	0	5/24/2018	0	6/21/2018	0	7/19/2018	0
4/27/2018	0.01	5/25/2018	0	6/22/2018	0	7/20/2018	0
4/28/2018	0.31	5/26/2018	0	6/23/2018	0.07	7/21/2018	0
4/29/2018	0	5/27/2018	0	6/24/2018	0.13	7/22/2018	0
4/30/2018	0	5/28/2018	0	6/25/2018	0	7/23/2018	0
5/1/2018	0	5/29/2018	0	6/26/2018	0	7/24/2018	0

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Date	Inches						
7/25/2018	0	8/22/2018	0	9/19/2018	0.03	10/17/2018	0
7/26/2018	0	8/23/2018	0.01	9/20/2018	0.05	10/18/2018	0
7/27/2018	0	8/24/2018	0	9/21/2018	0.02	10/19/2018	0
7/28/2018	0	8/25/2018	0	9/22/2018	0.05	10/20/2018	0
7/29/2018	0	8/26/2018	0.11	9/23/2018	0	10/21/2018	0
7/30/2018	0	8/27/2018	0	9/24/2018	0	10/22/2018	0
7/31/2018	0	8/28/2018	0	9/25/2018	0	10/23/2018	0.06
8/1/2018	0	8/29/2018	0	9/26/2018	0	10/24/2018	0
8/2/2018	0.02	8/30/2018	0	9/27/2018	0	10/25/2018	0.66
8/3/2018	0.01	8/31/2018	0	9/28/2018	0	10/26/2018	0.45
8/4/2018	0	9/1/2018	0	9/29/2018	0.03	10/27/2018	0.84
8/5/2018	0	9/2/2018	0	9/30/2018	0.03	10/28/2018	0.61
8/6/2018	0	9/3/2018	0	10/1/2018	0.3	10/29/2018	0.02
8/7/2018	0	9/4/2018	0	10/2/2018	0.01	10/30/2018	0.03
8/8/2018	0	9/5/2018	0	10/3/2018	0	10/31/2018	0.02
8/9/2018	0	9/6/2018	0	10/4/2018	0	11/1/2018	0.04
8/10/2018	0	9/7/2018	0.05	10/5/2018	0.56	11/2/2018	0.3
8/11/2018	0.05	9/8/2018	0.04	10/6/2018	0	11/3/2018	0.18
8/12/2018	0	9/9/2018	0.13	10/7/2018	0.03	11/4/2018	0.03
8/13/2018	0	9/10/2018	0	10/8/2018	0.1	11/5/2018	0
8/14/2018	0	9/11/2018	0	10/9/2018	0.09	11/6/2018	0.05
8/15/2018	0	9/12/2018	0.01	10/10/2018	0	11/7/2018	0.04
8/16/2018	0	9/13/2018	0	10/11/2018	0	11/8/2018	0
8/17/2018	0	9/14/2018	0.42	10/12/2018	0	11/9/2018	0.07
8/18/2018	0	9/15/2018	0.01	10/13/2018	0	11/10/2018	0
8/19/2018	0	9/16/2018	0.17	10/14/2018	0	11/11/2018	0
8/20/2018	0	9/17/2018	0	10/15/2018	0	11/12/2018	0
8/21/2018	0	9/18/2018	0	10/16/2018	0	11/13/2018	0



Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches						
11/14/2018	0.11	12/12/2018	0.07	1/9/2019	0.2	2/6/2019	0
11/15/2018	0.02	12/13/2018	0.29	1/10/2019	0.26	2/7/2019	0
11/16/2018	0.03	12/14/2018	0.01	1/11/2019	0	2/8/2019	0.46
11/17/2018	0	12/15/2018	0.06	1/12/2019	0	2/9/2019	0.16
11/18/2018	0	12/16/2018	0.33	1/13/2019	0	2/10/2019	0.16
11/19/2018	0	12/17/2018	0.45	1/14/2019	0	2/11/2019	1.22
11/20/2018	0	12/18/2018	0.7	1/15/2019	0	2/12/2019	0.86
11/21/2018	0.11	12/19/2018	0.11	1/16/2019	0	2/13/2019	0.02
11/22/2018	0.48	12/20/2018	0.27	1/17/2019	0.05	2/14/2019	0.12
11/23/2018	0.34	12/21/2018	0	1/18/2019	0.41	2/15/2019	0
11/24/2018	0	12/22/2018	0.3	1/19/2019	0.1	2/16/2019	0.15
11/25/2018	0.01	12/23/2018	0.72	1/20/2019	0	2/17/2019	0
11/26/2018	1.42	12/24/2018	0	1/21/2019	0	2/18/2019	0.05
11/27/2018	1.84	12/25/2018	0.02	1/22/2019	0.85	2/19/2019	0.13
11/28/2018	0.16	12/26/2018	0.14	1/23/2019	0.37	2/20/2019	0.19
11/29/2018	0	12/27/2018	0.01	1/24/2019	0.09	2/21/2019	0
11/30/2018	0.19	12/28/2018	0.43	1/25/2019	0	2/22/2019	0.11
12/1/2018	0.07	12/29/2018	0.63	1/26/2019	0	2/23/2019	0.05
12/2/2018	0.06	12/30/2018	0	1/27/2019	0	2/24/2019	0.01
12/3/2018	0	12/31/2018	0	1/28/2019	0	2/25/2019	0
12/4/2018	0	1/1/2019	0	1/29/2019	0	2/26/2019	0
12/5/2018	0	1/2/2019	0.04	1/30/2019	0	2/27/2019	0
12/6/2018	0	1/3/2019	0.78	1/31/2019	0.01	2/28/2019	0
12/7/2018	0	1/4/2019	0.08	2/1/2019	0.68	3/1/2019	0
12/8/2018	0	1/5/2019	0.04	2/2/2019	0.03	3/2/2019	0
12/9/2018	0.59	1/6/2019	0.4	2/3/2019	0.09	3/3/2019	0
12/10/2018	0.09	1/7/2019	0	2/4/2019	0.13	3/4/2019	0
12/11/2018	0.73	1/8/2019	0.15	2/5/2019	0	3/5/2019	0

Precipitation data for Seattle-Tacoma International Airport, Station USW00024233

Date	Inches				
3/6/2019	0.12	4/3/2019	0.03	5/1/2019	0
3/7/2019	0.21	4/4/2019	0.06	5/2/2019	0
3/8/2019	0.06	4/5/2019	0.32	5/3/2019	0
3/9/2019	0	4/6/2019	0.26	5/4/2019	0
3/10/2019	0	4/7/2019	0.28	5/5/2019	0
3/11/2019	0.28	4/8/2019	0.05	5/6/2019	0
3/12/2019	0.49	4/9/2019	0.33	5/7/2019	0
3/13/2019	0	4/10/2019	0.28	5/8/2019	0
3/14/2019	0	4/11/2019	0.4	5/9/2019	0
3/15/2019	0	4/12/2019	0.65	5/10/2019	0
3/16/2019	0	4/13/2019	0.09	5/11/2019	0
3/17/2019	0	4/14/2019	0.01	5/12/2019	0
3/18/2019	0	4/15/2019	0	5/13/2019	0
3/19/2019	0	4/16/2019	0.21	5/14/2019	0.16
3/20/2019	0	4/17/2019	0		
3/21/2019	0	4/18/2019	0.13		
3/22/2019	0.01	4/19/2019	0.16		
3/23/2019	0	4/20/2019	0		
3/24/2019	0	4/21/2019	0		
3/25/2019	0.16	4/22/2019	0.13		
3/26/2019	0.04	4/23/2019	0		
3/27/2019	0	4/24/2019	0		
3/28/2019	0	4/25/2019	0		
3/29/2019	0	4/26/2019	0		
3/30/2019	0	4/27/2019	0.14		
3/31/2019	0	4/28/2019	0		
4/1/2019	0	4/29/2019	0		
4/2/2019	0	4/30/2019	0		